CLAIMS:

1. A method of depositing polysilicon comprising:

positioning a substrate within a chemical vapor deposition reactor, the substrate having an exposed substantially crystalline region and an exposed substantially amorphous region; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the crystalline region and not the amorphous region.

2. The method of claim 1 wherein the conditions are void of plasma.

3. The method of claim 1 wherein the conditions include a time period effective to deposit no more than about 1500 Angstroms of polysilicon on the crystalline region.

4. The method of claim 1 wherein the conditions include a time period effective to deposit no more than about 1000 Angstroms of polysilicon on the crystalline region.

5. The method of claim 1 wherein the conditions comprise pressure greater than 30 mTorr.

6. The method of claim 1 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

7. The method of claim 1 wherein the conditions are void of feeding chlorine containing gas to the reactor.

8. A method of depositing polysilicon comprising:

positioning a substrate within a hot wall low pressure chemical vapor deposition reactor, the substrate having an exposed substantially crystalline region, and having an exposed substantially amorphous region comprising at least one of silicon dioxide and silicon nitride; and

feeding a gaseous silane precursor to the chemical vapor deposition reactor while providing reactor temperature at from about 650°C to about 850°C and reactor pressure at less than or equal to about 100 mTorr for a time period effective to deposit a polysilicon layer substantially selectively on the crystalline region and not the amorphous region to a thickness not greater than about 1500 Angstroms.

9. The method of claim 8 wherein the silane comprises a chlorosilane.

10. The method of claim 8 wherein the reactor atmosphere during the time period consists essentially of gaseous silane precursor.

11. The method of claim 8 wherein the reactor atmosphere during the time period is substantially void of gas comprising a conductivity enhancing dopant.

12. The method of claim 8 wherein the reactor atmosphere during the time period comprises a gas comprising a conductivity enhancing dopant.

13. The method of claim 8 wherein the conditions are void of feeding chlorine containing gas to the reactor.

14. A method of depositing polysilicon comprising:

positioning a substrate within a chemical vapor deposition reactor, the substrate having an exposed predominately crystalline region and an exposed predominately amorphous region; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to deposit polysilicon on both the crystalline and amorphous regions, the deposited polysilicon having a greater thickness over the crystalline region than over the amorphous region.

15. The method of claim 14 wherein the deposited polysilicon has a thickness of at least about 1500 Angstroms over the crystalline region.

16. The method of claim 14 wherein the conditions comprise temperature of greater than or equal to about 650°C.

17. The method of claim 14 wherein the conditions comprise pressure less than or equal to about 100 mTorr.

18. The method of claim 14 wherein the conditions comprise pressure greater than 30 mTorr.

19. The method of claim 14 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

20. The method of claim 14 wherein the conditions are void of feeding chlorine containing gas to the reactor.

21. The method of claim 14 wherein the exposed crystalline region is substantially crystalline and the exposed amorphous region is substantially amorphous.

22. A method of depositing polysilicon comprising:

positioning a substrate within a hot wall low pressure chemical vapor deposition reactor, the substrate having an exposed predominately crystalline region, and having an exposed predominately amorphous region comprising at least one of silicon dioxide and silicon nitride; and

feeding a gaseous silane precursor to the chemical vapor deposition reactor while providing reactor temperature at greater than or equal to about 650°C and reactor pressure at less than or equal to about 100 mTorr for a time period effective to deposit polysilicon on both the crystalline and amorphous regions, the deposited polysilicon having a greater thickness over the crystalline region than over the amorphous region.

23. The method of claim 22 wherein the deposited polysilicon has a thickness of at least about 1500 Angstroms over the crystalline region.

24. The method of claim 22 wherein the silane comprises a chlorosilane.

25. The method of claim 22 wherein the reactor atmosphere during the time period consists essentially of gaseous silane precursor.

26. The method of claim 22 wherein the exposed crystalline region is substantially crystalline and the exposed amorphous region is substantially amorphous.

27. The method of claim 22 wherein the conditions comprise pressure greater than 30 mTorr.

28. The method of claim 22 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

29. The method of claim 22 wherein the conditions are void of feeding chlorine containing gas to the reactor.

30. A method of depositing polysilicon comprising:

providing a semiconductor wafer having an exposed monocrystalline silicon region and an exposed substantially amorphous dielectric material region; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the monocrystalline silicon region and not the dielectric material region.

31. The method of claim 30 wherein the gaseous precursor comprising silicon comprises a silane.

32. The method of claim 30 wherein the gaseous precursor comprising silicon comprises a silane, and the reactor atmosphere during depositing consists essentially of gaseous silane precursor.

33. The method of claim 30 wherein the conditions comprise pressure greater than 30 mTorr.

34. The method of claim 30 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

35. The method of claim 30 wherein the conditions are void of feeding chlorine containing gas to the reactor.

36. The method of claim 30 wherein the conditions comprise temperature of greater than or equal to about 650°C and pressure less than or equal to about 100 mTorr, and wherein the gaseous precursor comprising silicon comprises a silane, and the reactor atmosphere during depositing consists essentially of the silane.

37. A method of fabricating a field effect transistor on a substrate comprising:

forming a gate dielectric layer and a gate over semiconductive material;

forming substantially amorphous insulating material over and laterally proximate the gate;

etching through the substantially amorphous insulating material to expose semiconductive material over at least one desired source/drain region laterally proximate at least one side of the gate and having the gate protectively covered with substantially amorphous insulating material proximate the etched portion;

providing the substrate after etching within a chemical vapor deposition reactor; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the source/drain region and not on substantially amorphous material, and forming an elevated source/drain on the one source/drain region.

38. The method of claim 37 wherein the gaseous precursor comprising silicon comprises a silane.

39. The method of claim 37 wherein the gaseous precursor comprising silicon comprises a silane, and the reactor atmosphere during depositing consists essentially of gaseous silane precursor.

40. The method of claim 37 wherein the conditions comprise pressure greater than 30 mTorr.

41. The method of claim 37 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

42. The method of claim 37 wherein the conditions are void of feeding chlorine containing gas to the reactor.

43. The method of claim 37 wherein the conditions comprise temperature of less than 800°C and pressure greater than 30 mTorr, and wherein the gaseous precursor comprising silicon comprises a silane, and the reactor atmosphere during depositing consists essentially of the silane.

44. A method of fabricating a field effect transistor on a substrate comprising:

forming a gate dielectric layer and a gate over semiconductive material;

forming doped source/drain regions within semiconductive material laterally proximate the gate;

forming substantially amorphous insulating material over and laterally proximate the gate;

providing the substrate within a chemical vapor deposition reactor; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the source/drain regions and not on substantially amorphous material, and forming elevated source/drains on the doped source/drain regions.

45. The method of claim 44 wherein the conditions are void of feeding chlorine containing gas to the reactor.

46. A method of forming a contact to a substrate comprising:

forming substantially amorphous insulating material over a substrate node location;

etching a contact opening through the amorphous insulating material over the node location;

providing the node location to comprise an outwardly exposed substantially crystalline surface;

providing the substrate with outwardly exposed substantially crystalline node location surface within a chemical vapor deposition reactor; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the outwardly exposed crystalline node location surface and not on the insulating material.

47. The method of claim 46 wherein the crystalline surface comprises a silicide.

48. The method of claim 46 wherein the crystalline surface comprises a silicide formed over monocrystalline silicon.

49. The method of claim 46 wherein the conditions comprise pressure greater than 30 mTorr.

50. The method of claim 46 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

51. The method of claim 46 wherein the conditions are void of feeding chlorine containing gas to the reactor.

52. A method of forming a contact to a substrate comprising:

forming substantially amorphous insulating material over a substrate node location comprising crystalline silicon;

etching a contact opening through the amorphous insulating material to the crystalline silicon of the node location;

providing the substrate with etched contact opening within a chemical vapor deposition reactor; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon within the contact opening on the crystalline silicon of the node location and not on the insulating material.

53. The method of claim 52 wherein the crystalline silicon is monocrystalline silicon.

54. The method of claim 52 wherein the crystalline silicon is polycrystalline silicon.

55. The method of claim 52 wherein the gaseous precursor comprising silicon comprises a silane, and wherein pressure during deposition is greater than 30 mTorr.

56. The method of claim 52 wherein the conditions are void of feeding chlorine containing gas to the reactor.

57. A method of forming a capacitor comprising:

providing a substrate within a chemical vapor deposition reactor, the substrate having an exposed substantially crystalline region and an exposed substantially amorphous region;

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the crystalline region and not the amorphous region, and forming the polysilicon into a first capacitor electrode;

forming a capacitor dielectric layer over the polysilicon; and

forming a second capacitor electrode over the capacitor dielectric layer.

58. The method of claim 57 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

59. The method of claim 57 wherein the conditions are void of feeding chlorine containing gas to the reactor.

60. A method of forming a capacitor comprising:

forming a first capacitor electrode over a substrate;

forming a substantially crystalline capacitor dielectric layer over the first capacitor electrode;

providing the substrate with substantially crystalline capacitor dielectric layer within a chemical vapor deposition reactor; and

feeding a gaseous precursor comprising silicon to the chemical vapor deposition reactor under conditions effective to substantially selectively deposit polysilicon on the crystalline region, and forming the polysilicon into a second capacitor electrode.

61. The method of claim 60 wherein the conditions comprise pressure greater than 30 mTorr and temperature of less than 800°C.

62. The method of claim 60 wherein the conditions are void of feeding chlorine containing gas to the reactor.

63. The method of claim 60 wherein the crystalline capacitor dielectric layer comprises barium strontium titanate. BST

64. The method of claim 60 wherein the crystalline capacitor dielectric layer comprises Ta_2O_5.

Tantalum

TaO_2